

REMARKS

Prior to this amendment, Claims 1-18 and 20-22 were pending. In this paper, Claims 4, 5, 8, 9, 16 and 17 have been canceled, Claims 1, 6, 7, 11, 20, 21 and 22 have been amended and Claim 24 has been added. The dependencies of Claims 6, 7 and 11 have been amended in light of cancellations of claims 5 and 6. In light of the forgoing, claims 1-3, 6, 7, 10-15, 18, 20-22 and 24 remain pending, entry of the amendments and consideration of these claims in light of the following is hereby requested.

No new matter has been added via these amendments to the claim set. Applicants reserve their right to pursue subject matter cancelled from the claims, or otherwise described in the specification but not currently claimed in the future.

Applicants respond to each of the objections or rejection raised in the order in which they were presented in the Office Action.

I. Section 112, Second Paragraph Rejection Overcome

Claims 1 and 4 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Claim 1 has been amended to remove the "means" language. No new matter has been added. Claim 4 has been canceled.

In light of these amendments, eliminating the "means" language in question, it is asserted that the rejection under 35 USC §112 ¶2 is moot.

II. The Claimed subject Matter is not Anticipated by Parce (US 6,046,056)

Pending Claims 1-3, 6-7, 11-15, 18, 20, and 21 stand rejected under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Patent No. 6,046,056 (Parce *et al.*). Applicants respectfully traverse this rejection.

Claim 1 recites:

“A system having a microfluidic channel structure in which fluids are able to interact to produce at least one product, and an automated closed-loop control mechanism to autonomously control a condition in the channel structure, the control mechanism having:
a sensor adapted to produce a sensor signal representative of a predetermined property of the at least one product which is dependent on the condition in the channel structure,
a transfer mechanism to transfer reagents from an array of reagents to the channel structure, and
a computer adapted to receive the sensor signal and to cause the transfer mechanism to change the reagent combination in the channel structure in dependence of the sensor signal.”

As will be appreciated, *“for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly.”* (MPEP 706.02 (emphasis added)). Nowhere in Parce is there is any disclosure or suggestion of the use of automated closed-loop (i.e. feedback) control, an element of the invention of claim 1. The Examiner appears to misunderstand the nature of the Parce disclosure in regard to this point, as reflected in the Office Action, at point 22:

22. With regards to applicant's argument on page 7 paragraph 7 that Pace does not disclose an “automated closed-loop control mechanism”, the Examiner disagrees with this assertion. As stated in the previous action, the reaction of Pace can be operated in a continuous fashion which implies that the operation is automated. Therefore, the rejections of claims 1-18 and 20-22 under 35 U.S.C. 102(b) stands.

With due respect, the Applicant cannot agree with the reasoning that a disclosure in Parce of continuous operation implies automated closed-loop control, as claimed. Parce defines the usage of the term “continuous” at column 8, lines 18-24: *“As used herein, the term “continuous” generally refers to an unbroken or contiguous stream of the particular composition that is being continuously flowed. For example, a continuous flow may include a constant fluid flow having a set velocity, or alternatively, a fluid flow which includes pauses in the flow rate of the overall system, such that the pause*

does not otherwise interrupt (sic) the flow stream." Thus, Parce does not describe or imply automated closed-loop control.

In the claimed invention, the sensor signal is used as feedback (the "closed-loop") to enable autonomous control of the system by the computer. More particularly, the computer is adapted to cause the transfer mechanism to change the reagent combination in the channel structure in dependence of the sensor signal, i.e. the sensor signal produced by the previous reagent combination, so, the earlier result is used to determine the next reagent combination for analysis.

There is no disclosure or suggestion in Parce of any of its systems having an automated control mechanism which is fed the test result for a test compound and then, in dependence of that result, determining and introducing a subsequent test compound for testing.

Thus, not only are the claims clearly novel over Parce, they also involve an inventive step as there is no hint or suggestion of use of an automated closed-loop control mechanism. As such, Parce neither anticipates nor renders obvious claim 1. As Parce neither anticipates nor renders claim 1 obvious, it cannot as a matter of law render the claims directly or indirectly dependent on claim 1 unpatentable. Thus each of the pending claims is patentably distinct over the teachings of Parce.

III. Section 103(a) Rejection Overcome

The rejection of claim 23 as obvious over Parce et al. is moot in light of the cancellation of the claim.

CONCLUSION

All claim rejections being addressed in full, Applicants respectfully requests the withdrawal of the outstanding objections and rejections and the issuance of a Notice of Allowance.

Should the Examiner have any questions regarding the foregoing, Applicant respectfully requests that the Examiner contact the undersigned, who can be reached at (919) 483-9995

Respectfully submitted,

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